ABSTRACT

A packet switching network including subscriber stations connected to each other through at least one switch, which has a behavior defined as deterministic in that any packet sent on the network from a source subscriber station joins the destination subscriber station(s) within a limited time. In the packet switching network each output port from each switch on the network satisfies the relationship:

$$\sum_{\substack{i \text{ number of virtual links} \\ \text{passing through the buffer}}} \left[ 1 + \text{int}\left( \frac{(Jitter\ \ In)_i + \max Latency}{BAGi} \right) \right] * \qquad (max\ frame\ duration) \leq latency$$

in which: the max latency value is a maximum residence time in an output buffer of the at least one switch, this value may be different for each switch in the network, BAGi is a minimum time between two consecutive frames belonging to a virtual link i, before they are transmitted, $(\text{Jitter In})_i$ is Jitter associated with the virtual link i that represents a time interval between a theoretical instant at which a frame is transmitted, and its effective transmission that may be before or after the theoretical instant, and (max frame duration) is a duration of a longest frame on the virtual link i.